

Claims

- [c1] 1. A device, comprising:
a waveguiding optical conduit operable to confine light and direct light along an optic axis;
a surface formed on a side of said waveguiding optical conduit and positioned in a region where an evanescent field of said confined light exists; and
an optical detector coupled to said surface to receive and detect a power of said evanescent field.
- [c2] 2. The device as in claim 1, wherein said waveguiding optical conduit is a fiber, and where said surface is formed by removing a portion of fiber cladding.
- [c3] 3. The device as in claim 2, further comprising a substrate that has a groove formed on one surface, wherein said fiber has a portion in said groove that includes said surface.
- [c4] 4. The device as in claim 1, wherein said waveguiding optical conduit is a planar waveguide formed on a substrate.
- [c5] 5. The device as in claim 1, further comprising an overlay layer formed between said surface and said optical detector and having a refractive index higher than a refractive index of said waveguiding optical conduit.
- [c6] 6. The device as in claim 1, further comprising:
a variable optical attenuator formed in another portion of said waveguiding optical conduit and operable to control an amount of light remaining in said waveguiding optical conduit in response to an external control signal; and
a controller operable to produce said external control signal in response to a detector signal produced by said optical detector.
- [c7] 7. A device, comprising:
a waveguiding optical conduit operable to confine light and direct light along an optic axis;
a surface formed on a side of said waveguiding optical conduit and positioned in a region where an evanescent field of said confined light exists;
a waveguide overlay formed above said surface with a refractive index greater

than a refractive index of said waveguiding optical conduit to extract a fraction of light out of a guide mode via evanescent coupling to produce a monitor signal in said waveguide overlay, said waveguide overlay having an end facet which forms an acute angle with respect to said surface to receive said monitor signal; and
an optical detector coupled to said end facet of said waveguide overlay to receive and detect said monitor signal.

[c8] 8. The device as in claim 7, wherein said waveguiding optical conduit is a fiber, and where said surface is formed by removing a portion of fiber cladding and said index of said waveguide overlay is greater than a refractive index of fiber core of said fiber.

[c9] 9. The device as in claim 8, further comprising a substrate that has a groove formed on one surface, wherein said fiber has a portion in said groove that includes said surface.

[c10] 10. The device as in claim 7, wherein said waveguiding optical conduit is a planar waveguide formed on a substrate.

[c11] 11. The device as in claim 7, further comprising:
a variable optical attenuator formed in another portion of said waveguiding optical conduit and operable to control an amount of light remaining in said waveguiding optical conduit in response to an external control signal; and
a controller operable to produce said external control signal in response to a detector signal produced by said optical detector.

[c12] 12. The device as in claim 7, wherein said acute angle and an orientation of said detector are set to substantially equalize intensities of TM and TE polarizations in received light at said detector.